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Compare the Quality of Life in Type 2 Diabetic Patients with Healthy Individuals (Application of WHOQOL-BREF)

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Abstract

Background: Diabetes is a chronic disease that its prevalence will double in the world by 2030. According to the report of world health organization (WHO) in 2014, diabetes is the fourth main disease contributing to premature death among Iranians.
Objectives: According to the third national program of care system for risk factors of non-communicable diseases, the prevalence of diabetes is reported to be more than 8 percent. Given the high prevalence of diabetes and its importance, the aim of this study was compare the quality of life in patients with type II diabetes and healthy people in Kerman.
Methods: This study was a cross-sectional. Two hundred diabetic patient and 200 healthy people participated in this study. The WHOQOL-BREF was used to collect data.
Results: This study showed that score of quality of life in all dimension in diabetic patients were fewer than healthy people impressively ($P < 0.05$). The score of quality of life in physical dimension was higher in men than women ($P = 0.035$) and it was also higher in people graduated in diploma than other levels of education ($P = 0.047$).
Conclusions: To recapitulate, since chronic diabetes disease is not fatal, the patients will not be recovered and they practically have the disease and its complications over their entire life, it is recommended to address the quality of life among these patients' especially physical and psychological domains.

Keywords: Quality of Life, Diabetes Type 2, WHOQOL-BREF

1. Background

Diabetes or hyperglycemia is defined as abnormal increase in blood sugar level and type II diabetes is the prevalent form of it [1]. Type II diabetes; or diabetes Mellitus; is ranked the first among 15 diseases with the highest burden as compared with other diseases in 2015 [2]. The mortality rate of chronic diseases is rising throughout the world so that deaths due to these diseases will be increased up to 17 percent by the year 2015. The highest increase was reported in African and East Mediterranean regions [3]. By the year 2030, the prevalence of diabetes will be doubled so that it is predicted to be increased from 2.8 percent in 2000 to 4.4 percent in 2030 [4]. Iran is not an exception as a country in East Mediterranean region and according to the third national program of care system for risk factors of non-communicable diseases, the prevalence of diabetes is reported to be more than 8 percent [5]. Also according to the report of world health organization (WHO) in 2014, diabetes is the fourth main disease contributing to premature death among Iranians [6].

In recent years and following the promotion in treatment methods and health conditions, the increased longevity phenomenon and as a result, quality of life is proposed. So that, increase in longevity is not considered without the quality of life but also the quality of life for entire of life is an issue of interest [7]. WHO defined quality of life as the conception of individuals from their position in the life considering culture, value system they live in, purposes, expectations, standards, and priorities. Therefore, it can be said that quality of life is a subjective issue which is not visible for others and is based on individuals' perception from different aspects of life [8].

Since full recovery from chronic diseases is not possible and death caused by these diseases will not happen soon, therefore the aim of health care is to optimize the quality of life. If modifying the quality of life is intended in medical treatment, it should be considered as an outcome in the therapeutic researches. Results of clinical trials demonstrate that quality of life can be considered as an index for the quality of health care and as a part of treatment plan. By measuring the quality of life in chronic diseases, we can obtain more information regarding both the health and disease conditions, it can also be an appropriate guideline for improving the quality of cares [9].

Numerous studies have been conducted on quality of life among patients with type II diabetes and each of them

assessed it from different point of view. Generally, a negative relationship was observed between diabetes disease and quality of life which can affect physical, mental, and social aspects of individuals [9-16]. A related affecting factors on quality of life among these patients, we can point to complications of type II diabetes and underlying and demographic variables, age, gender, educational status of individuals and their family members regarding medical information, duration of disease, and economical status which have significant relationship with patient's quality of life [12, 14, 17]. As mentioned before, diabetes is one of the chronic diseases with rising trend throughout world especially in East Mediterranean region. Iran is located in East Mediterranean region and naturally is not an exception as a developing country.

2. Objectives

In this study a general questionnaire was used which was recommended from WHO. To evaluate health interventions and socio-economic assessment this questionnaire is better than others (especially SF-36) [18], and also it had never been used in Kerman province. The results of Hadipour et al.'s study showed that diabetes patients in Kerman with two other provinces had lower quality of life in Iran and also the difference was not because of the healthcare services. Finally they noted that further studies are needed to find the differences [19].

Considering the importance of quality of life among patients with type II diabetes and its effect on follow-up trend by the patient, treatment outcomes, and low quality of life among patients with type II diabetes in Kerman. Current study was conducted to assess the quality of life among patients with type II diabetes in Kerman city and tried for checking out other related factors.

3. Methods

This study was a cross-sectional and analytical one. With assuming $\sigma = 16$, obtained from previous studies. Considering type I error of 0.05, type two error of 0.20, and acceptable difference of 5; the sample size in each group was obtained 123. In order to increase the power of study, sample size in each group was considered 200.

Convenience sampling method was used for selection diabetic patient and Healthy people. The questioner was a trained person familiar with the method of the study. Questionnaires were completed from June to September 2015. Participants of the case group included diabetes patient referring to Besat II Specialty and Subspecialty clinic (location of Kerman diabetes center). After explaining the proposal to the patients with type II diabetes and obtaining their satisfaction and oral consent, the questionnaires were distributed and another person was replacedin the case of unwillingness to reach adequate participants.

Comparison group included healthy individuals referring to the same clinic for any other reason except diseases, accidentally from family members, or from other people near the diabetes center with no disabling chronic disease and considering age range. Questionnaires were similarly distributed to the patient group.

WHOQOL-BREF questionnaire; introduced by WHO in 1996; was used to measure the quality of life among healthy and diabetic groups. WHOQOL-BREF questionnaire measures four domains namely physical health, psychological health, social relationship, and environment with 24 questions (each domain consisted of 7, 3, 6, and 8 questions, respectively) [20]. The first two questions are not related to these domains and only evaluate health condition and quality of life in general. Therefore, this questionnaire consisted of 26 questions. After conducting necessary calculation in each domain, a score equal to 4 - 20 will be achieved in each domain, separately in which, 4 and 20 were the worst and the best sign of condition in intended domain. These scores can be converted to a score with the range of 0 to 100 [21].

The accreditation of the Persian version questionnaire was done firstly by Nedjat et al. in 2006. The reliability of the questionnaire was measured using Cronbach's alpha and Intra class correlation (ICC) resulting from repeated test which was reported to be upper than 0.7 among all domains except psychological domain (0.55). The validity of the questionnaire was evaluated by differentiation ability of the tool among healthy and patient groups using linear-regression. In order to measure structural factors of the questionnaire, Correlation matrix of questions with domains was used and in 83 percent of cases, the correlation of each question with its related domain was higher than other domains and scores of patient and healthy groups in various domains had significant difference. Eventually, obtained results suggested validate, reliable, and acceptable structural factors of this Persian version questionnaire among both patient and healthy groups [21]. In this study Cronbach's alpha above 0.7 for all dimension.

Spearman correlation coefficient, Mann-Whitney U, Kruskal-Wallis tests, and linear regression were used to analyze data using Version 22 SPSS software and the significant level was considered less than 0.05.

4. Results

The mean age of type II diabetes and healthy groups were 54.91 ± 9.04 and 44.16 ± 9.09 years old, respectively.

The mean family members among diabetic and healthy individuals were 4.25 ± 1.78 and 3.87 ± 1.30, respectively. The mean years of diabetes affection among diabetic patients was 11 ± 8.14 (median = 10) years old.

Female participants of both groups were more than male participants (78 percent of diabetic patients and 60 percent of healthy individuals). The majority of the diabetic patients had high school level education (34 percent) and most of healthy participants were college students (59 percent). The majority of participants among both groups were also married (Table 1).

The mean scores of all quality of life domains were significantly lower among diabetic group as compared with healthy group (Table 2).

None of the dimensions of quality of life showed a significant relationship by age, household size, duration of diabetes and number of complications (Table 3).

The score of quality of life in physical dimension was higher in men than women (P = 0.035) and it was also higher in people graduated in diploma than other levels of education (P = 0.047) (Table 4).

The effects of age and gender are adjusted. Other variables in the univariate analysis which had P value less than 0.25 were entered into the model (Table 5).

5 Discussion

In the current study, the mean scores of all quality of life domains were significantly lower among diabetic group as compared with healthy group. Among diabetic group, the maximum and the minimum scores were related to environmental and psychological domains, respectively. In a study conducted in Rafsanjan, Vazirinejad et al. demonstrated that emotional status of patients with type II diabetes was affected more by the disease which is consistent with the current study [16]. The assessment of Ahari et al. in Ardabil also contributed to similar results and physical and psychological domains of these patients were affected more [22]. We can also point to the study of Zivcicova and Gullerova in Check Republic and Slovakia which reported similar results using WHOQOL-BREF questionnaire with the difference that the mean score of all domains in diabetic patients was lower than the present study [23]. In the study of Kolawole et al. in Nigeria, environmental domain scored the most [24] and also, the investigation of Qhsemi-Pour et al. in Khorramabad showed that over than 70% of diabetic patients had undesirable quality of live in physical and mental aspects [25] which are similar to our study.

In the current study, physical domain had significant relationship with gender and educational status which was higher among diploma and male individuals.

In studies of Darvishpour et al. in Tehran [11] and Timareh et al. in Kermanshah [15], the quality of life among diabetic patients had significant relationship with gender and educational status which is partially consistent with the present study. It can due to the fact that more men than women are able to participate in society and it allows them to have more social connections and also having better sense about themselves. But about the education can be due to higher numbers of diploma in this study.

In the present study, none of quality of life domains had significant relationship with disease duration and complication count of diabetic patients. Monjamed et al. In Tehran, determined the quality of life among patients with chronic complications of diabetesand reported no significant relationship between chronic complication count and quality of life [26] which was similar to the current study and can be due to low numbers of complications.

In the present study there was no significant relationship between disease duration and quality of life Ahmadi et al. studied affecting factors on quality of life among patients with type II diabetes in Chaharmahal and Bakhtiary province; suggested diabetes duration of over 10 years along with other factors as the most important determinants of quality of life [10]. However the results of Darvishpour et al.'s study showed that there was no significant relationship between duration of the disease, marital status and quality of life [11]. In the present study it can due to the good care of the disease or good healthcare services and also because of lower (median 10 years) duration of disease in this study. Nonsignificant results about marital status can be due to the highest numbers of divorced.

Eventually, according to obtained results it can be said that quality of life among patients with diabetes in the current study was moderate and demographic factors can affect this quality and it can be an alarm for healthcare system and family of diabetes patients because you know, quality of life affects many aspects of our lives, for example work life, it is more important in patients, and eventually not only can diseases (diabetes) affect patient life but also they can affect society in many ways that need further studies to survey it.

Except aging, inability to understand the concepts of questionnaire, sometimes lack of participation, and illiteracy, there was no other limitation in the current study. Furthermore, the location of diabetes center in Besat II Specialty and Subspecialty clinic and being referral are among the advantages of the present study.

Collectively, since chronic diabetes disease is not fatal, the patients will not be recovered and they practically have the disease and its complications over their entire life, it is recommended to address the quality of life among these patients, especially physical and psychological domains. Further study to determine the contribution of other fac-

Table 1. Demographic Information (for Each Group of Patients and Healthy Peoples)[a]

		Type 2 Diabetic Patients	Healthy Individuals	P Value
Gender	Male	41 (20.5)	74 (37)	< 0.001
	Female	157 (78.5)	120 (60)	
	Total	198 (99)	194 (97)	
Education	Illiterate	17 (8.5)	0 (0)	< 0.001
	Elementary	27 (13.5)	3 (1.5)	
	Junior high school	37 (18.5)	11 (5.5)	
	High school	68 (34)	67 (33.5)	
	University	48 (24)	118 (59)	
	Total	197 (98.5)	199 (99.5)	
Marital status	Single	1 (0.5)	23 (11.5)	< 0.001
	Married	22 (11)	7 (3.5)	
	Widow(er)	3 (1.5)	3 (1.5)	
	Divorced	169 (84.5)	166 (83)	
	Total	195 (97.5)	199 (99.5)	
Number of complications (in patients)	0	93 (46.5)		
	1	64 (32.0)		
	2	31 (15.5)		
	3	7 (3.5)		
	4	3 (1.5)		

[a] Values are expressed as No. (%).

Table 2. Comparing the Quality of Life (in Patients with Type 2 Diabetes and Healthy People)[a]

Scale	Dimensions	Type 2 Diabetic Patients	Healthy Individuals	P Value
0 - 100	Physical	54.61 ± 11.98	62.97 ± 16.57	< 0.001
	Psychological	53.94 ± 12.59	59.32 ± 16.4	< 0.001
	Social	54.63 ± 18.78	60.42 ± 17.27	0.001
	Environmental	56.47 ± 11.03	60.15 ± 16.77	0.001
4 - 20	Physical	12.8 ± 2.61	14.07 ± 1.98	< 0.001
	Psychological	12.62 ± 2.01	13.48 ± 2.63	< 0.001
	Social	12.75 ± 3	13.67 ± 2.76	0.001
	Environmental	13.01 ± 1.76	13.61 ± 2.65	0.001

[a] Values are expressed as mean ± standard deviation.

Table 3. The Relationship Between Age, Household Size, Duration of Diabetes and Number of Complications with Quality of Life in People with Type 2 Diabetes

	Age		Household Size		Number of Complications		Duration of Diabetes	
	r	P Value	r	P Value	r	P Value	r	P Value
Physical	-0.018	0.8	0.084	0.236	-0.085	0.963	-0.003	0.962
Psychological	0.054	0.045	-0.008	0.905	-0.051	0.419	-0.046	0.53
Social	-0.103	0.148	0.056	0.434	-0.08	0.264	0.016	0.828
Environmental	0.034	0.638	-0.054	0.45	-0.061	0.393	0.079	0.274

tors such as socio-economic status with more numbers of participations is required.

Table 4. The Relationship Between Age, Gender, Marital Status and Education Levels with Quality of Life in Diabetics (Some Categories Were Merged)

		Physical		Psychological		Social		Environmental	
		Mean ± Standard Deviation	P Value	Mean ± Standard Deviation	P Value	Mean ± Standard Deviation	P Value	Mean ± Standard Deviation	P Value
Gender	Male	62.47 ± 17.22	0.035	58.73 ± 16.46	0.705	59.95 ± 17.68	0.252	58.23 ± 16.08	0.948
	Female	57.19 ± 13.79		55.83 ± 14.04		56.64 ± 18.48		58.47 ± 13.53	
Education	Under diploma	52.86 ± 11.92	0.047	52.17 ± 13.28	0.237	53.8 ± 18.7	0.128	55.48 ± 11.11	0.647
	Diploma	57.22 ± 10.34		55.54 ± 11.51		58.34 ± 17.24		57.51 ± 11.66	
	University	53.87 ± 13.93		55.67 ± 12.09		51.31 ± 20.74		57.19 ± 10.13	
Marital status	Single, widow(er) and divorced	53.92 ± 11.73	0.702	55.58 ± 10.96	0.463	56 ± 16.64	0.742	59.62 ± 11.04	0.085
	Married	54.74 ± 12.18		53.73 ± 12.88		54.29 ± 19.32		55.95 ± 10.91	

Table 5. Affecting Factors on Four Dimension of Quality Life by Linear Regression Analysis

Variable	Physical			Psychological			Social			Environmental		
	β	Se β	P Value	β	Se β	P Value	β	Se β	P Value	β	Se β	P Value
Group	6.04	1.81	0.001	3.46	1.82	0.058	3.68	2.24	0.102	3.98	1.69	0.020
Age	-0.17	0.08	0.029	-0.038	0.080	0.62	-0.27	0.09	0.006	0.001	0.07	0.995
Gender Reference = Male	-3.74	1.71	0.030	-1.23	1.724	0.47	-3.44	2.12	0.106	0.909	1.62	0.577
Household number	0.585	0.48	0.225									
Educational Level Reference = under diplom	0.320	0.79	0.687	1.22	0.801	0.12	-1.31	0.98	0.184			
Marital Status Reference = Single										-0.45	0.86	0.600

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